**Main characteristics and applications**

Stainless martensitic steel with a high hardenability, good polishing properties, excellent resistance to corrosion and hot oxidation.

Its applications are plastic moulds, particularly for acid aggressive plastics (i.e. acetate and PVC), or plastics containing abrasive fillers. Suited for the manufacture of glass, such as moulds of optical products.

**Comparable standards**

<table>
<thead>
<tr>
<th>UNI</th>
<th>W.Nr</th>
<th>DIN</th>
<th>AFNOR</th>
<th>AISI/SAE</th>
<th>BS</th>
</tr>
</thead>
<tbody>
<tr>
<td>X42Cr13</td>
<td>1.2083</td>
<td>X40Cr14</td>
<td>420C</td>
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</table>

**Chemical analysis**

<table>
<thead>
<tr>
<th>C</th>
<th>Mn</th>
<th>Si</th>
<th>Cr</th>
<th>P+S</th>
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</thead>
<tbody>
<tr>
<td>0.36</td>
<td>12.50</td>
<td>0.42</td>
<td>1.00</td>
<td>1.00</td>
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<tr>
<td>0.42</td>
<td>1.00</td>
<td>1.00</td>
<td>14.50</td>
<td>0.030</td>
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**Critical points**

<table>
<thead>
<tr>
<th>Ac1</th>
<th>Ms</th>
</tr>
</thead>
<tbody>
<tr>
<td>840 °C</td>
<td>260 °C</td>
</tr>
</tbody>
</table>

**Supply Conditions**

Annealed HB < 230

**Heat treatments**

**Annealing**

- Heat to 845 - 870 °C and hold at minimum rate for 3 hours
- Cooling up to 600°C and hold at minimum for 3 hours
- Furnace cooling

**Stress relieving**

- To be carried out after machining and before the final heat treatment
- Heat to 600 - 650 °C for 2 hours, furnace cooling

**Hardening**

- Preheat to 600 - 700 °C
- Austenitizing at 1000 - 1050 °C in oil, considering the steel shape and size
- Cooling in oil, air
- Quenched hardness: 52 - 56 HRC

**Tempering**

- To be carried out after the hardening according to the required hardness; at 170 - 270 °C in order to match hardness and resistance to corrosion; permanence for at least 2 hours; tempering must be repeated at least twice at a temperature 30 °C lower than the previous.
- Cooling in air

Stainless martensitic steel with a high hardenability, good polishing properties, excellent resistance to corrosion and hot oxidation. Its applications are plastic moulds, particularly for acid aggressive plastics (i.e. acetate and PVC), or plastics containing abrasive fillers. Suited for the manufacture of glass, such as moulds of optical products.

Reference Standard UNI EN ISO 4957

Plastic mould steel

1.2083

To be carried out after machining and before the final heat treatment
7 C.C.T. curve

Austenitizing temperature: 1040°C

B

F+C

A+C

Ms

HV

8 Tempering curve

Hardness [HRC]

Tempering temperature [°C]